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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/699,174 | 10/31/2003 | Seung-Woo Lee | 11038-111-999 | 1598 |
| 24341 | 7590 | 01/27/2005 | EXAMINER | |
| MORGAN, LEWIS & BOCKIUS, LLP. 2 PALO ALTO SQUARE 3000 EL CAMINO REAL PALO ALTO, CA 94306 | | | ESHETE, ZELALEM | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3748 | |

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/699,174 | Applicant(s) LEE, SEUNG-WOO | |
| | Examiner Zelalem Eshete | Art Unit 3748 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed on 12/10/2004.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita (5,127,380) in view of Agarrat (5,465,694).

Regarding claim 1: Morishita discloses a camshaft thrust cam cap assembly for an engine including a camshaft spaced from a crankshaft, said assembly comprising at least one thrust cam cap disposed on said camshaft (see figure 10); Morishita further disclose the thrust cam cap is disposed on the second bearing (see numeral 154).

Morishita fails to disclose a thrust bearing cap is disposed on the crankshaft and being positioned such that said thrust cam cap falls within an angle of about 5 respect to an axis having an origin at said thrust bearing cap and extending perpendicularly with respect to said camshaft.

However, Agarrat discloses a thrust bearing cap is disposed on the crankshaft and being positioned such that the second cam bearing falls within an angle of about 5

respect to an axis having an origin at said thrust bearing cap and extending perpendicularly with respect to said camshaft.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Morishita's device by incorporating the thrust bearing cap for the crankshaft as taught by Agarrat in order to improve the engine performance.

Regarding claims 2,3: With regard to the location of thrust bearing cap, it is the examiners position that the claimed positions would have been an obvious matter of design choice well within the level of ordinary skill in the art depending upon the engine type and size. Moreover, there is nothing in the record which establishes that the claimed specific locations present a novel or unexpected result (*see In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Regarding claim 4: Morishita discloses the thrust cam cap is mounted over a bearing surface to carry the camshaft; and said thrust cam cap forms a bearing part that protrudes with respect to a width of the bearing surface to support longitudinal movement of the camshaft at a lateral side of said thrust cam cap (see column 10,12-15).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 5,6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakatani et al. (4,957,079).

Regarding claim 5: Nakatani discloses a camshaft thrust cam cap (see figures 3,4), comprising: a body member having two sides defining a width therebetween and defining a concave opening along one edge extending between sides for receiving a camshaft therein (see figure 4); a bearing part disposed along a periphery of said concave opening on at least one side of said body part and protruding from said side (see figure 3).

5. Regarding claim 6: Nakatani discloses said body member defines holes at opposite ends of the body member running between said sides for securing the body member to a cylinder head (see figure 4).

Response to Arguments

6. Applicant's arguments filed on 12/10/2004 have been fully considered but they are not persuasive.
7. With respect to applicant's argument on page 3: Agarrat discloses a thrust bearing cap is disposed on the second crankshaft bearing which is perpendicularly

below the second cam bearing (see numerals 2,12), this suggests to one of ordinary skill in the art that the cam/crankshaft bearings would be within the claimed range.

8. In response to applicant's arguments against the references individually by arguing Arragat doesn't disclose thrust cam bearing and Morishita fails to disclose a thrust bearing cap disposed on crankshaft, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Morishita discloses camshaft thrust cam cap for the second cam bearing, whereas, Agarrat discloses crankshaft thrust bearing cap for the second crankshaft bearing. Thus the combination of the references would suggest to one of ordinary skill in the art to utilize the thrust bearings of cam/crankshaft to take advantage of both teachings.

9. With respect to applicant's argument on page 3: Morishita in view of Arragat discloses the alignment of both thrust cam cap for the camshaft and for the crankshaft as discussed above. As to the specific locations of the bearings, it is the examiners position that the claimed positions would have been an obvious matter of design choice dependent on the engine type (V-type, inline, etc.) or size (X-cylinders, Y-valves engine, etc.).

10. Morishita discloses the camshaft is provided with a thrust shoulder that cooperates with thrust taking surfaces of the bearing cap so as to take axial thrusts on the camshaft (see column 10, 1lines 12 to 15), which is equivalent to "thrust cam cap

forms a bearing part that protrudes with respect to a width of the bearing surface to support longitudinal movement of the camshaft" (see figure 10).

11. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

12. With respect to applicant's argument on page 4: Nakatani discloses a bearing part disposed along a periphery of said concave opening on at least one side of said body part and protruding from said side, in that Nakatani discloses on both sides (see figures 3,4).

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete
Examiner
Art Unit 3748

Z


THOMAS DENION
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